

walls dissolve, and their mulberry-like contents float for some time in the fluid of the cavity, after which the spermatozoids, hitherto united by their heads, separate and become free.

Oviposition takes place at different periods, according to the genera and species, and it is effected through the segmental organs.—*Comptes Rendus*, February 24, 1879, p. 393.

*On Gloidium quadrifidum, a new Genus of the Group Protista.*

By M. N. SOBOKIN.

This new type of the Protista has been found at Kasan in a fresh-water aquarium. It consists of a small mass of protoplasm, about 0.03 millim. in diameter, of a more or less spherical form, and without an enveloping membrane. It exhibits a clear and transparent ectosarc, an endosarc containing reddish and yellowish granules of different sizes, and a contractile vesicle occupying a variable position, but usually situated in the ectosarc. There is generally a lapse of three or four minutes between the first appearance and the disappearance of this vesicle.

The changes of form of the outline of this creature are slow; and it only emits short processes having a slight tendency to bifurcate. A division which occurs in it begins to show itself in the ectosarc; but before it has had time to become well-marked, there appears a second constriction, perpendicular to the first, so that the mass soon forms four parts, only attached to one another by slender peduncles united in the middle, and which finally separate completely. The contractile vesicle, which had at first withdrawn to the middle of the body, afterwards reappears in each of the four new individuals.

Under the influence of conditions which are still unknown, this Protiston undergoes an encystment. The outer layer of the ectosarc gives origin to a thin but resistant membrane; then, within this first envelope, other similar, more or less distinct layers successively make their appearance. Upon one point of the envelope of the cytode thus formed there is a funnel-shaped canal, which is closed at the outer surface only by the first membrane of the cyst. The protoplasm of the *Gloidium* soon passes into this canal, ruptures the membrane which closes it, and passes outside. The organism which is thus set free is usually smaller than before the encystment. Multiplication by division takes place afresh, either immediately or after two or three successive encystments.

*Gloidium* is distinguished from the true Amœbæ by the absence of a nucleus, and from the Monera by the existence of a contractile vesicle, and (except the Lepomonera) by its faculty of encystment.

However, as passages exist between the Amœbæ and the Monera, the most striking character which distinguishes this new form is the quaternary division. In the *Vampyrellæ*, indeed, a similar division is observed; but it is effected during the encystment, while here it takes place in the free phase.—*Morphologisches Jahrbuch*, vol. iv. 1878, p. 398; *Bibl. Univ.* March 15, 1879, *Arch. des Sci.* p. 287.